35. (Amended) The catalyst of claim 30, wherein said particulate has a particle size of between about 10 and about 20 Angstroms.

37. (Amended) The catalyst of claim 30, wherein said particulate has a particle proximity of between about 2 Angstroms and about 300 Angstroms.

Cancel claims 71-79.

REMARKS

The Interview

Applicant wishes to thank Examiner Nguyen for meeting with applicant's representatives on July 19, 2001. During the inverview applicant's invention was discussed and distinguished over the prior art.

The Office Action

Support for the amendments is found in the specification as originally filed. No new matter has been added. The Office Action is discussed in detail below.

Claim Objections

Paragraph 6 of Office Action

Claims 1-6, 8, 30-35, 37 & 76 are objected to because of informalities.

The claims have been amended to correct the informalities. The objection to claims 1-6, 8, 30-35, 37 & 76 is overcome and applicant respectfully requests that the objection be removed.

Claim Rejections- 35 USC 112 (Second Paragraph)

Paragraph 8 of Office Action

Claims 9-14 are rejected under 35 USC 112 (second paragraph)

Claims 9 and 10 have been appropriately amended. The rejection of claims 9 and 10 is overcome and applicant respectfully requests that the rejection be removed.

Claim Rejections- 35 USC 102(b)

Paragraph 10 of Office Action

Claims 1-17, 19-23, 26-28, 30-50, & 52-54 are rejected under 35 USC 102(b) as being anticipated by Hatura (US Pat. 5,506,273).

Applicant's claim 1 (as amended) recites:

1. A catalyst, comprising:

a metal particulate having a particle size of less than about 100 Angstroms, said metal particulate consisting essentially of at least one non-noble metal; and

a support.

The noble metals are silver, gold, platinum, palladium, rhodium, ruthenium, iridium, and osmium. (See Materials Science and Engineering, An Introduction, William D. Callister, Jr., John Wiley & Son, Inc., Fifth Edition, 2000, page 376).

Hatura is directed to a catalyst comprising a metal oxide and gold. As stated above, gold is a noble metal. Hatura thus fails to teach or suggest a catalyst comprising "a metal particulate having a particle size of less than

about 100 Angstroms, ~~said~~ metal particulate consisting essentially of at least one **non-noble** metal…" as claimed by applicant.

Hence, Hatura fails to teach or suggest all of the limitations of applicant's claim 1. The rejection of claim 1 as being anticipated by Hatura under 35 USC 102(b) is overcome and applicant respectfully requests that the rejection be removed.

Claims 2-17, 19-23, 26-28 depend from claim 1 and include all of the limitations of claim 1 as well as additional limitations. Hence, the rejection of claims 2-17, 19-23, 26-28 is also overcome and applicant respectfully requests that the rejection be removed.

Applicant's claim 30 recites:

30. A catalyst, comprising:

a nickel and/or nickel alloy particulate having a particle size of less than about 100 Angstroms, said nickel alloy lacking platinum and palladium; and

a support.

As discussed, Hatura is directed to a catalyst comprising a metal oxide and gold. Hatura fails to teach

or suggest a catalyst comprising "a nickel and/or nickel alloy particulate having a particle size of less than about 100 Angstroms, said nickel alloy lacking platinum and palladium..." as recited in claim 1.

Hence, Hatura fails to teach or suggest all of the limitations of applicant's claim 30. The rejection of claim 30 as being anticipated by Hatura under 35 USC 102(b) is thus improper and applicant respectfully requests that the rejection be removed.

Claims 31-50 and 52-54 depend from claim 30 and include all of the limitations of claim 30 as well as additional limitations. The rejection of claims 31-50 and 52-54 as being anticipated by Hatura under 35 USC 102(b) is also improper and applicant respectfully requests that the rejection be removed.

Claim Rejections - 35 USC 102(b)/103

Paragraph 12 of the Office Action

Claims 29, 55 & 71-79 are rejected under 35 USC 102(b) as anticipated by or, in the alternative, under 35 USC 103(a) as obvious over Hatura.

Claims 71-79 are cancelled. The rejection of claims 71-79 is overcome and applicant respectfully requests that the rejection be removed.

Claim 29 depends from claim 1 and includes all of the limitations of claim 1 as well as additional limitations. As discussed above, Hatura fails to teach or suggest all of the limitations of applicant's claim 1 (as amended). Hence, Hatura fails to teach or suggest all of the limitations of applicant's claim 29. The rejection of claim 29 is overcome and applicant respectfully requests that the rejection be removed.

Claim 55 depends from claim 30 and includes all of the limitations of claim 30 as well as additional limitations. As discussed, Hatura fails to teach or suggest all of the limitations of applicant's claim 30. Hence, Hatura fails to teach or suggest the limitations of applicant's claim 55. The rejection of claim 55 is improper and applicant respectfully requests that the rejection be removed.

Claim Rejections - 35 USC 103

Paragraph 14 of the Office Action

Claims 25 & 51 are rejected under 35 USC 103(a) as being unpatentable over Hatura, as applied to claims 1-17, 19-23, 26-28, 30-50, & 52-54, and further in view of Tsou.

As discussed, Hatura fails to teach or suggest all of the limitations of applicant's claim 1 (as amended). Claim 25 depends from claim 1 and includes all of the limitations of claim 1 as well as additional limitations. Tsou fails to make up for the deficiencies of Hatura. The combination of Hatura in view of Tsou thus fails to teach or suggest all of the limitations of claim 25. Hence, the rejection of claim 25 under 35 USC 103(a) as being unpatentable over Hatura in view of Tsou is overcome and applicant respectfully requests that the rejection be removed.

As discussed, Hatura fails to teach or suggest all of the limitations of applicant's claim 30. Claim 51 depends from claim 30 and includes all of the limitations of claim 30 as well as additional limitations. Again, Tsou fails to make up for the deficiencies of Hatura. The combination of Hatura in view of Tsou fails to teach or suggest all of the limitations of claim 51. Hence, the rejection of claim 51

under 35 USC 103(a) as being unpatentable over Hatura in view of Tsou is improper and applicant respectfully requests that the rejection be removed.

Paragraph 15 of Office Action

Claims 18 & 45-46 are rejected under 35 USC 103(a) as being unpatentable over Hatura as applied to claims 1-17, 19-23, 26-28, 30-44, 47-50 & 52-54, and further in view of Flytani-Stephanopoulous.

As discussed, Hatura fails to teach or suggest all of the limitations of applicant's claim 1 (as amended). Claim 18 depends from claim 1 and includes all of the limitations of claim 1 as well as additional limitations. Flytani-Stephanopoulos fails to make up for the deficiencies of Hatura. The combination of Hatura in view of Flytani-Stenphanopoulos fails to teach or suggest all of the limitations of claim 18. Hence, the rejection of claim 18 under 35 USC 103(a) as being unpatentable over Hatura in view of Flytani-Stephanopoulos is overcome and applicant respectfully requests that the rejection be removed.

As discussed, Hatura fails to teach or suggest all of the limitations of applicant's claim 30. Claims 45-46 depend from claim 30 and includes all of the limitations of

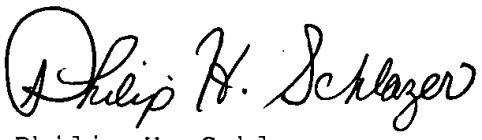
claim 30 as well as additional limitations. Again, Flytani-Stephanopoulos fails to make up for the deficiencies of Hatura. The combination of Hatura in view of Flytani-Stephanopoulos fails to teach or suggest all of the limitations of claims 45-46. Hence, the rejection of claims 45-46 under 35 USC 103(a) as being unpatentable over Hatura in view of Flytani-Stephanopoulos is improper and applicant respectfully requests that the rejection be removed.

SUMMARY

Claims 71-79 have been cancelled. In view of the above amendments and remarks, claims 1-55 are in a condition for allowance. Applicant respectfully requests reconsideration, withdrawal of the outstanding objections and rejections, and notification of allowance.

Should the Examiner have any questions or suggestions regarding the prosecution of this application, she is asked to contact applicant's representative at the telephone number listed below.

Respectfully submitted,



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Marked up copy of the amendment

1. (Amended) A catalyst [lacking platinum and palladium], comprising:

a metal particulate having a particle size of less than about 100 Angstroms, said metal particulate consisting essentially of at least one non-noble metal; and

a support.

2. (Amended) The catalyst of claim 1, wherein said particulate has a particle size [is] of less than about 70 Angstroms.

3. (Amended) The catalyst of claim 1, wherein said particulate has a particle size [is] of less than about 50 Angstroms.

4. (Amended) The catalyst of claim 1, wherein said particulate has a particle size [is] of between about 10 and about 50 Angstroms.

5. (Amended) The catalyst of claim 1, wherein said particulate has a particle size [is] of between about 10 and about 30 Angstroms.

6. (Amended) The catalyst of claim 1, wherein said particulate has a particle size [is] of between about 10 and about 20 Angstroms.

8. (Amended) The catalyst of claim 1, wherein said particulate has a particle proximity of between about 2 Angstroms and about 300 Angstroms.

9. (Amended) The catalyst of claim 1, wherein said particulate comprises at least one metal selected from the group consisting of nickel, and nickel alloy.

10. (Amended) The catalyst of claim 1, wherein said particulate consists essentially of at least one metal selected from the group consisting of nickel, and nickel alloy.

30. (Amended) A catalyst, comprising:

a nickel and/or nickel alloy particulate having a particle size of less than about 100 Angstroms, said nickel alloy lacking platinum and palladium; and

a support.

31. (Amended) The catalyst of claim 30, wherein said particulate has a particle size [is] of less than about 70 Angstroms.

32. (Amended) The catalyst of claim 30, wherein said particulate has a particle size [is] of between about 10 and about 50 Angstroms.

33. (Amended) The catalyst of claim 30, wherein said particulate has a particle size [is] of between about 10 and about 40 Angstroms.

34. (Amended) The catalyst of claim 30, wherein said particulate has a particle size [is] of between about 10 and about 30 Angstroms.

35. (Amended) The catalyst of claim 30, wherein said particulate has a particle size [is] of between about 10 and about 20 Angstroms.

37. (Amended) The catalyst of claim 30, wherein said particulate has a particle proximity of between about 2 Angstroms and about 300 Angstroms.

Cancel claims 71-79.

FIFTH EDITION

Materials Science and Engineering

An Introduction

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for extrusion dies and structural parts in space vehicles; incandescent light filaments, x-ray tubes, and welding electrodes employ tungsten alloys. Tantalum is immune to chemical attack by virtually all environments at temperatures below 150°C, and is frequently used in applications requiring such a corrosion-resistant material.

12.12 The Superalloys

The superalloys have superlative combinations of properties. Most are used in aircraft turbine components, which must withstand exposure to severely oxidizing environments and high temperatures for reasonable time periods. Mechanical integrity under these conditions is critical; in this regard, density is an important consideration because centrifugal stresses are diminished in rotating members when the density is reduced. These materials are classified according to the predominant metal in the alloy, which may be cobalt, nickel, or iron. Other alloying elements include the refractory metals (Nb, Mo, W, Ta), chromium, and titanium. In addition to turbine applications, these alloys are utilized in nuclear reactors and petrochemical equipment.

12.13 The Noble Metals

The noble or precious metals are a group of eight elements that have some physical characteristics in common. They are expensive (precious) and are superior or notable (noble) in properties—i.e., characteristically soft, ductile, and heat resistant. The noble metals are silver, gold, platinum, palladium, rhodium, ruthenium, iridium, and osmium; the first three are most common and are used extensively in jewelry. Silver and gold may be strengthened by solid-solution alloying with copper; sterling silver is a silver–copper alloy containing approximately 7.5 wt% Cu. Alloys of both silver and gold are employed as dental restoration materials; also, some integrated circuit electrical contacts are of gold. Platinum is used for chemical laboratory equipment, as a catalyst (especially in the manufacture of gasoline), and in thermocouples to measure elevated temperatures.

12.14 Miscellaneous Nonferrous Alloys

The discussion above covers the vast majority of nonferrous alloys; however, a number of others are found in a variety of engineering applications, and a brief exposure of these is worthwhile.

Nickel and its alloys are highly resistant to corrosion in many environments, especially those that are basic (alkaline). Nickel is often coated or plated on some metals that are susceptible to corrosion as a protective measure. Monel, a nickel-based alloy containing approximately 65 wt% Ni and 28 wt% Cu (the balance iron), has very high strength and is extremely corrosion resistant; it is used in pumps, valves, and other components that are in contact with some acid and petroleum solutions. As already mentioned, nickel is one of the principal alloying elements in stainless steels, and one of the major constituents in the superalloys.

Lead, tin, and their alloys find some use as engineering materials. Both are mechanically soft and weak, have low melting temperatures, are quite resistant to many corrosion environments, and have recrystallization temperatures below room temperature. Many common solders are lead–tin alloys, which have low melting temperatures. Applications for lead and its alloys include x-ray shields and storage batteries. The primary use of tin is as a very thin coating on the inside of plain